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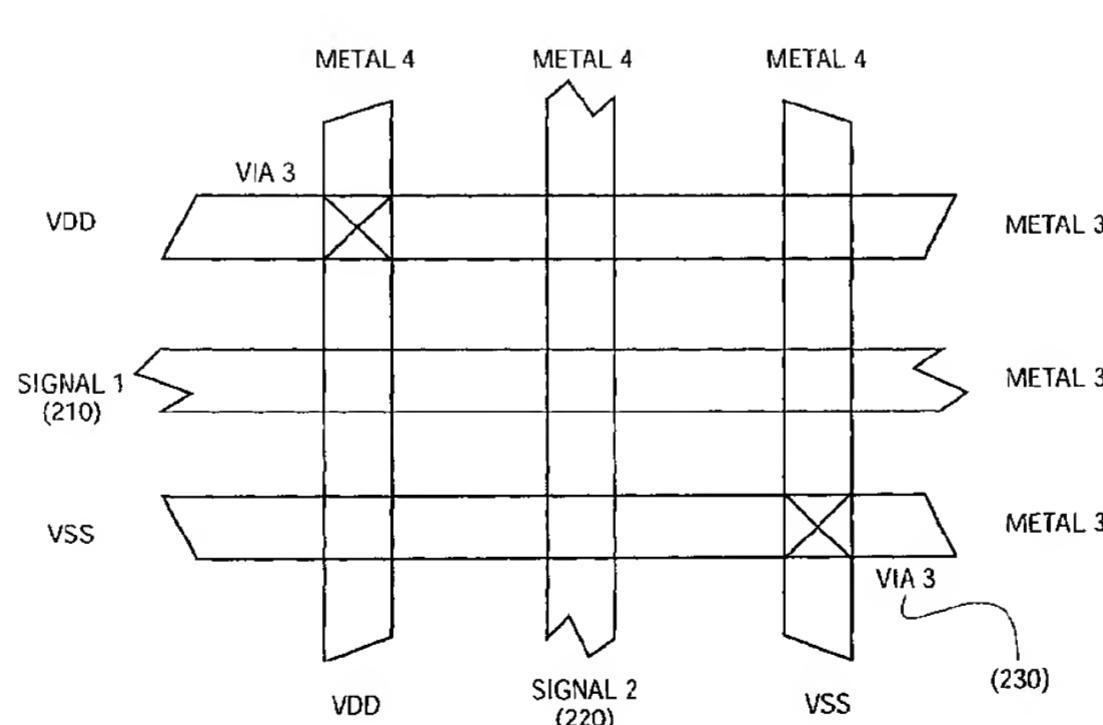
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(54) Title: POWER AND GROUND SHIELD MESH TO REMOVE BOTH CAPACITIVE AND INDUCTIVE SIGNAL COUPLING EFFECTS OF ROUTING IN INTEGRATED CIRCUIT DEVICE



(57) Abstract: An embodiment of the invention describes the routing of a shield mesh of both power and ground lines to remove noise created by capacitive and inductive coupling. Relatively long signal lines are routed in between fully connected power and ground shield mesh which may be generated by a router during the signal routing phase or during power mesh routing phase. Leaving only the odd tracks or the even tracks for signal routing, power mesh (VDD) and ground mesh (VSS) are routed and fully interconnected leaving shorter segments and thereby reducing the RC effect of the circuit device. Another embodiment presents a technique where the signals are shielded using the power and ground mesh for a gridless routing. Another embodiment presents a multi-layer grid routing technique where signals are routed on even grid and the power and ground lines are routed on odd grid. A similar embodiment represents grid routing technique where the signals are routed between layers N and N+1. Another embodiment enables signals to be shielded by opposite power and ground grids on left, right, top and bottom.

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 353 040 A (KRUMM HORST ET AL) 5 October 1982 (1982-10-05) abstract; figures 1,3 column 1, line 20 - line 26 column 1, line 47 -column 2, line 8 column 2, line 28 - line 43 claim 1 ---	1,3-8, 10-16, 18-20
A	US 2001/013422 A1 (SCHAPER LEONARD W) 16 August 2001 (2001-08-16) abstract; figures 13-15 page 2, paragraph 19 -page 3, paragraph 27 page 7, paragraph 102 claims 1-6 ---	2,9
X	US 2001/013422 A1 (SCHAPER LEONARD W) 16 August 2001 (2001-08-16) abstract; figures 13-15 page 2, paragraph 19 -page 3, paragraph 27 page 7, paragraph 102 claims 1-6 ---	1,2,4-9, 11-20
A	US 2001/013422 A1 (SCHAPER LEONARD W) 16 August 2001 (2001-08-16) abstract; figures 13-15 page 2, paragraph 19 -page 3, paragraph 27 page 7, paragraph 102 claims 1-6 ---	3,10
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 5 723 908 A (FUCHIDA YUMI ET AL) 3 March 1998 (1998-03-03) abstract; figures 3,6B,9,10 column 7, line 29 -column 8, line 43 claims 1,2 -----	1,2,8,9, 17

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